

Diagnostic: Polynomial Functions II

Question 1 of 25 (157048)

Maximum Attempts: 1

Question Type: Multiple Response

Maximum Score: 1

Question: Which of the following are polynomial functions? *Check all that apply.*

Correct Answers:

	Choice
*A.	$F(x) = 2x^2 + 5x - 3$
B.	$F(x) = 4\sqrt[3]{x} - 5$
C.	$F(x) = \frac{3}{5}x^4 - 18x^3 + x^{-2} - 10x + 3.5$
*D.	$F(x) = 1.2x^4 + 5x^2 - \frac{2}{3}x + 1$
*E.	$F(x) = -6x^3 + 9x^2 + 3x - 10$

Question 2 of 25 (157067)

Maximum Attempts: 1

Question Type: Multiple Choice

Maximum Score: 1

Question: Identify the term that prevents the following expression from being considered a polynomial.

$$F(x) = \frac{3}{4}x^4 - 5x^3 + 10.1x^2 - \sqrt{7}x + 3$$

	Choice
A.	$\frac{3}{4}x^4$
B.	$-5x^3$
*C.	$-\sqrt{7}x$
D.	$10.1x^2$

Question 3 of 25 (157097)

Maximum Attempts: 1
Question Type: Numeric Fill In Blank
Maximum Score: 1
Correct Answer: 26
Question: For the polynomial below, find $F(2)$.

$$F(x) = 3x^3 - 2x^2 + 5x$$

Question 4 of 25 (157099)

Maximum Attempts: 1
Question Type: Numeric Fill In Blank
Maximum Score: 1

Correct Answer: -32

Question: For the polynomial below, find $F(-3)$.

$$F(x) = -\frac{1}{3}x^2 + 8x - 5$$

Question 5 of 25 (157098)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: quartic, Quartic, fourth-degree, fourth degree, Fourth-degree, Fourth degree

Question: What kind of polynomial is the one shown below?

$$F(x) = 7x^4 - \frac{2}{9}x + 3.6$$

Question 6 of 25 (157109)

Maximum Attempts: 1

Question Type: Multiple Choice

Maximum Score: 1

Question: In the polynomial below, what is the leading coefficient?

$$F(x) = \frac{5}{6}x + 3x^2 - 4.3x^3 - 7x^4$$

	Choice
A.	$\frac{5}{6}$
B.	3
C.	-4.3
*D.	-7
E.	1

Question 7 of 25 (157112)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: $(x-5)(x-4)$, $(x-4)(x-5)$

Question: Factor the polynomial shown below . *Do not use spaces in your answer.*

$$x^2 - 9x + 20$$

Question 8 of 25 (157113)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: $(4x+3)(4x-3)$, $(3+4x)(4x-3)$, $(4x-3)(4x+3)$, $(4x-3)(3+4x)$

Question: Factor the polynomial shown below . *Do not use spaces in your answer.*

$$16x^2 - 9$$

Question 9 of 25 (157114)

Maximum Attempts: 1

Question Type: Numeric Fill In Blank

Maximum Score: 1

Correct Answer: 28

Question: What is the value of the discriminant of the polynomial below?

$$-3x^2 - 4x + 1$$

Question 10 of 25 (157115)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: 1, one, once, one time, 1 time

Question: How many times does the graph of the function below intersect or touch the x-axis?

$$y = 4x^2 - 20x + 25$$

Question 11 of 25 (157116)

Maximum Attempts: 1

Question Type: Multiple Response

Maximum Score: 1

Question: Which of the following are solutions to the equation below? *Check all that apply.*

$3x^2 - 5x + 2 = 0$

Correct Answers:

	Choice
A.	$\frac{5 \pm \sqrt{2}}{6}$
B.	$\pm \frac{1}{3}$
*C.	$\frac{2}{3}$
*D.	1

Question 12 of 25 (157121)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: 7i

Question: $\sqrt{-49} = \underline{\hspace{1cm}}$.

Question 13 of 25 (157123)

Maximum Attempts: 1

Question Type: Multiple Choice

Maximum Score: 1

Question: $i^{83} = \underline{\hspace{2cm}}$.

	Choice
A.	i
B.	-1
*C.	$-i$
D.	1

Question 14 of 25 (157124)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: 6-4i

Question: Add the complex numbers.

$$(2 - 5i) + (4 + i)$$

Question 15 of 25 (157125)

Maximum Attempts: 1

Question Type: Text Fill In Blank
Maximum Score: 1
Is Case Sensitive: false
Correct Answer: $1+5i$, $1 + 5i$
Question: Subtract the complex numbers.

$$(6 + i) - (5 - 4i)$$

Question 16 of 25 (157126)

Maximum Attempts: 1
Question Type: Text Fill In Blank
Maximum Score: 1
Is Case Sensitive: false
Correct Answer: $-16+30i$, $-16 + 30i$
Question: Multiply the complex numbers.

$$(3 + 5i)(3 + 5i)$$

Question 17 of 25 (157127)

Maximum Attempts: 1
Question Type: Multiple Choice
Maximum Score: 1
Question: Divide the complex numbers.

$$\frac{4 + i}{2 - 3i}$$

	Choice
A.	$\frac{8 + 3i}{-1}$
*B.	$\frac{5 + 14i}{13}$
C.	$\frac{8 + 11i}{-1}$
D.	$\frac{11 - 8i}{13}$

Question 18 of 25 (157133)

Maximum Attempts: 1

Question Type: Text Fill In Blank

Maximum Score: 1

Is Case Sensitive: false

Correct Answer: multiplying

Question: When _____ complex numbers, it is usually wise to use the technique known as FOIL.

Question 19 of 25 (157135)

Maximum Attempts: 1

Question Type: True-False

Maximum Score: 1

Question: The polynomial $(x - 3)$ is a factor of the polynomial $F(x) = 2x^2 - 4x - 6$

	Choice
*A.	True
B.	False

Question 20 of 25 (157136)

Maximum Attempts: 1

Question Type: Multiple Choice

Maximum Score: 1

Question: What is the quotient when $(x - 1)$ is divided into the polynomial $F(x) = 5x^2 + 2x + 1$?

	Choice
A.	$5x - 1$ with a remainder of -3
*B.	$5x + 7$ with a remainder of 8
C.	$5x + 8$ with no remainder
D.	$x + 1$ with no remainder

Question 21 of 25 (157143)

Maximum Attempts: 1

Question Type: Numeric Fill In Blank

Maximum Score: 1

Correct Answer: -6

Question: What is the missing number in the synthetic division problem below?

$$\begin{array}{r} -3 \overline{) 2 \ 5 \ 3 \ 6} \\ \underline{ ? \ 3 \ -18} \\ 2 \ -1 \ 6 \ -12 \end{array}$$

Question 22 of 25 (157152)

Maximum Attempts: 1

Question Type: Numeric Fill In Blank

Maximum Score: 1

Correct Answer: -30

Question: What is the remainder when -2 is synthetically divided into the polynomial $2x^3 - x^2 + 3x - 4$?

Question 23 of 25 (157157)

Maximum Attempts: 1

Question Type: Multiple Response

Maximum Score: 1

Question: Which of the following are roots of the polynomial below? *Check all that apply.*

$$F(x) = x^3 + 3x^2 + 4x + 2$$

Correct Answers:

	Choice
*A.	-1
*B.	-1 + i

C.	$\frac{3 \pm \sqrt{29}i}{2}$
*D.	-1 - i
E.	1

Question 24 of 25 (157168)

Maximum Attempts: 1

Question Type: Multiple Choice

Maximum Score: 1

Question: Find the correct factorization of the polynomial below.

$$F(x) = x^3 + x^2 - 8x + 6$$

	Choice
*A.	$(x-1) (x-[-1+\sqrt{7}]) (x-[-1-\sqrt{7}])$
B.	$(x-1) (x-[1-\sqrt{7}]) (x-[1+\sqrt{7}])$
C.	$(x-1) (x+[-1+\sqrt{7}]) (x-[-1-\sqrt{7}])$
D.	$(x-1) (x+[-1-\sqrt{7}]) (x-[-1-\sqrt{7}])$

Question 25 of 25 (157184)

Maximum Attempts: 1

Question Type:

Multiple Response

Maximum Score:

1

Question:

Which of the following are possible rational roots of the polynomial below? *Check all that apply.*

$$F(x) = 3x^2 - 2x + 8$$

Correct Answers:

	Choice
*A.	± 8
*B.	$\pm \frac{1}{3}$
C.	± 3
D.	$\pm \frac{3}{8}$
*E.	± 4